We claim:

1. A method for incorporating nucleic acid segments into cellular nucleic acid of an isolated eukaryotic target cell, the method comprising the step of:

delivering into the eukaryotic target cell an *in vitro* assembled Mu transposition complex that comprises (i) MuA transposases and (ii) a transposon segment that comprises a pair of Mu end sequences recognised and bound by MuA transposase and an insert sequence between said Mu end sequences, under conditions that allow integration of the transposon segment into the cellular nucleic acid.

2. The method according to claim 1, wherein said Mu transposition complex is delivered into the target cell by electroporation.

3. The method according to claim 1, wherein the nucleic acid segment is incorporated to a random or almost random position of the cellular nucleic acid of the target cell.

4. The method according to claim 1, wherein the nucleic acid segment is incorporated to a targeted position of the cellular nucleic acid of the target cell.

5. The method according to claim 1, wherein the target cell is human, animal, plant, fungi or yeast cell

6. The method according to claim 5, wherein said animal cell is a mouse cell.

7. The method according to claim 1, wherein said insert sequence comprises a marker, which is selectable in eukaryotic cells.

8. The method according to claim 1, wherein a concentrated fraction of Mu transposition complexes are delivered into the target cell.

9. The method according to claim 1 further comprising the step of incubating the target cells under conditions that promote transposition into the cellular nucleic acid.

10. A method for forming an insertion mutant library from a pool of eukaryotic target cells, the method comprising the steps of:

a) delivering into the eukaryotic target cell an *in vitro* assembled Mu transposition complex that comprises (i) MuA transposases and (ii) a transposon segment that comprises a pair of Mu end sequences recognised and bound by MuA transposase and an insert sequence with a selectable marker between said Mu end sequences, under conditions that allow integration of the transposon segment into the cellular nucleic acid; and

b) screening for cells that comprise the selectable marker.

11. A kit for incorporating nucleic acid segments into cellular nucleic acid of a eukaryotic target cell comprising a concentrated fraction of Mu transposition complexes with a transposon segment that comprises a marker, which is selectable in eukaryotic cells.